What We Claim Is:

1. A system for providing high connectivity communications over a packet-switched optical ring network comprising:

a core optical ring having at least one node, said node being coupled to a subtending system by an optical crossbar switch;

a tunable laser for generating a set of serial packets;

a stacker for forming a first composite packet from said set of serial packets, said stacker coupled to said optical crossbar switch, and said stacker further coupled to said tunable laser;

said first composite packet being parallel packets in a single photonic time slot, said first composite packet to be added to said core optical ring in a vacant photonic time slot via said optical crossbar switch;

a second composite packet propagating on said core optical ring destined to be dropped at said node for further distribution on said subtending system via said optical crossbar switch;

an unstacker for serializing said second composite packet dropped at said node, said unstacker coupled to said optical crossbar switch; and

a detector for distributing said serialized packets to a further destination by said subtending system.

2. The system according to claim 1, wherein said stacker and said unstacker form a single interleaved device sharing some components.

3. The system according to claim 1, wherein each of said serial packets of said set of serial packets generated by said tunable stacker are at a different wavelength.

4. The system according to claim 1, wherein said stacker further comprises:

an optical circulator; and

a plurality of Fiber Bragg Gratings (FBG), one FBG for each wavelength that said tunable laser generates.

5. The system according to claim 1, wherein each parallel packet of said composite packet is at a different wavelength.

6. The system according to claim 5, wherein said unstacker further comprises:

an optical circulator; and

a plurality of FBGs, one FBG for each wavelength that said unstacker is capable of receiving in said second composite packet.

7. The system according to claim 2, wherein said stacker-unstacker combination device is formed by a pair of WDMs.

8. The system according to claim 7, wherein a pair of mirrors is interposed on each line between each WDM of said WDM pair.

9. The system according to claim 1, wherein said optical crossbar switch is a 2x2 switch.

10. The system according to claim 1, wherein said optical crossbar switch is a n x n switch.

11. The system according to claim 1, wherein said stacker is a WDM, and further wherein said WDM forms said first composite packet by feeding output lines back into said WDM itself.

12. The system according to claim 1, wherein said unstacker is a WDM, and further wherein said WDM serializes said second composite packet by feeding output lines back into said WDM itself.

13. A system for providing high connectivity communications over a packet-switched optical ring network comprising:

a core optical ring having at least one node, said node being coupled to a subtending system by an optical crossbar switch;

a device for forming a first composite packet formed by a set of packets generated in parallel by an array of lasers, said device coupled to said optical crossbar switch;

said first composite packet being parallel packets in a single photonic time slot, said first composite packet to be added to said core optical ring in a vacant photonic time slot via said optical crossbar switch;

a second composite packet propagating on said core optical ring destined to be dropped at said node for further distribution on said subtending system via said optical crossbar switch;

an unstacker for serializing said second composite packet dropped at said node, said unstacker coupled to said optical crossbar switch; and

a detector for distributing said serialized packets to a further destination by said subtending system.

14. A system for providing high connectivity communications over a packet-switched optical ring network comprising:

a core optical ring having at least one node, said node coupled to a subtending system by an optical crossbar switch;

a plurality of composite packets propagating on said core optical ring, wherein at least one of said composite packets is not destined for further distribution on said subtending system so passes through said optical crossbar switch, said optical crossbar switch flipped in a bar state, and further wherein another at least one of said composite packets is destined for further distribution on said subtending system so is dropped onto said subtending system by flipping said optical crossbar switch into a cross state; and

another composite packet is formed by a device coupled to an optical crossbar switch, said another composite packet is to be added to said core optical ring in a vacant photonic time slot by flipping said optical crossbar switch into said cross state.

15. The system according to claim 14, wherein said at least one composite packet to be dropped from said core optical ring occurs at the same time as the composite packet to be added to said core optical ring.

16. The system according to claim 14, wherein said composite packet to be added to said core optical ring is added to said core optical ring in a vacant photonic time slot.

17. A system for accomplishing transparent bypass over a high connectivity communications packed-switched optical ring network comprising:

a core optical ring with at least one node, said node having an optical crossbar switch, said optical crossbar switch coupled to a subtending system;

a first composite packet propagating on said core optical ring, said first composite packet being destined for distribution on said subtending system, said first composite packet being dropped via said optical crossbar switch in a cross state; and

a first WDM coupled to said optical crossbar switch for receiving said first composite packet, and for filtering and separating wavelengths comprising said first composite packet into wavelengths destined for distribution on said subtending system and wavelengths not destined for further distribution on said subtending system, and said first WDM further serializing and outputting packets at the wavelengths destined for distribution on said subtending system, said first WDM forwarding packets at wavelengths not destined for further distribution on said subtending system to a second WDM for outputting back onto said core optical ring via said optical crossbar switch in said cross state.

18. The system according to claim 15, wherein a second composite packet to be added to said core optical ring is created and interleaved with said packets, not destined for further distribution on said subtending system, prior to outputting said packets, not destined for further distribution, back onto said core optical ring.

19. A system for accomplishing transparent bypass over a high connectivity communications packet-switched optical ring network comprising:

a core optical ring having at least one node, said node having an optical crossbar switch;

a first composite packet comprising a plurality of parallel packets in a single photonic time slot propagating on said core optical ring;

a first portion of said plurality of parallel packets destined for further distribution on a subtending system coupled to said optical crossbar switch;

a second portion of said plurality of parallel packets to be passed through and output back onto said core optical ring;

a plurality of three and four port circulators coupled to said optical crossbar switch; and

a plurality of Fiber Bragg Gratings (FBGs) coupled to and sandwiched between said plurality of three- and four-port circulators, wherein the first portion of said plurality of parallel packets are serialized and further distributed, and said second portion of said plurality of parallel packets are passed through said plurality of three- and four-port circulators and said plurality of FBGs and output back onto said core optical ring.

20. The system according to claim 17, wherein a second composite packet to be added to said core optical ring is created, said second composite packet is interleaved with said second portion of said plurality of parallel packets prior to outputting said second portion of said plurality of parallel packets back onto said core optical ring.

21. A system for providing high connectivity communications over an optical ring network comprising:

a core optical ring having at least one node, said node being coupled to a subtending system by an optical crossbar switch;

a source for generating a set of serial packets;

a stacker for forming a first composite packet from said set of serial packets, said stacker coupled to said optical crossbar switch, and said stacker further coupled to said source;

said first composite packet being parallel packets in a single photonic time slot, said first composite packet to be added to said core optical ring in a vacant photonic time slot via said optical crossbar switch;

a second composite packet traveling around said core optical ring destined to be dropped at said subtending system for further distribution via said optical crossbar switch; and

an unstacker for serializing said second composite packet dropped at said subtending system, said unstacker coupled to said optical crossbar switch.

22. The system according to claim 21, wherein said source for generating a set of serial packets is a tunable laser.

23. The system according to claim 21, further comprising:

a control channel to provide enhanced services including packet formation, packet insertion, packet extraction and optical crossbar switch control.

24. The system according to claim 21, wherein said control channel is out-of-band.

25. The system according to claim 21, wherein said stacker is serial.

26. The system according to claim 21, wherein said stacker is parallel.

27. The system according to claim 21, wherein said unstacker is serial.

28. The system according to claim 21, wherein said unstacker is parallel.

29. The system according to claim 21, wherein said stacker and said unstacker are both serial and share optical components.

30. The system according to claim 21, wherein said stacker and said unstacker are both parallel and share optical components.

31. The system according to claim 21, wherein a transparent bypass scheme accomplishes a bypass from switch output to switch input.

32. The system according to claim 31, wherein a first portion of said second composite packet is distributed to a destination and a second portion of said second composite packet is routed back onto said core optical ring bypassing said stacker.

33. The system according to claim 32, wherein said second portion of said second composite packet is interleaved with a third composite packet created by said stacker.

34. The system according to claim 33, wherein a first portion of said second composite packet is distributed to a destination and a second portion of said second composite packet is routed back onto said core optical ring by passing through said stacker.

35. The system according to claim 34, wherein said second portion of said second composite packet is interleaved with a third composite packet created by said stacker.

36. The system according to claim 21, wherein said node has optical output and said subtending system is driven optically by output of said optical crossbar switch.

37. The system according to claim 35, wherein said node further comprises transceivers to receive said optical output of said node and to retransmit said optical output of said optical crossbar switch to said subtending system.